

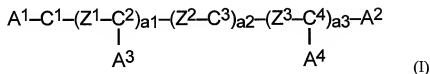
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A mesogenic, cross-linkable mixture comprising:
 - i) a cross-linkable liquid crystalline host comprising at least one cross-linkable liquid crystalline compound, and
 - ii) at least one chiral or achiral rod shaped additive component, wherein said additive component has a rigid core and comprises at least two fused or linked, optionally substituted, non-aromatic, aromatic, carbocyclic or heterocyclic groups, and also comprises at least one optionally substituted alkyl residue, and at least one polymerizable group and wherein the additive component changes from the liquid crystalline state to the isotropic state at a temperature of ~~40~~ 20 °C or lower.
2. (canceled).
3. (original): A mixture according to claim 1, wherein the additive component has a transition temperature to the isotropic state of 0 °C or lower.
4. (previously presented): A mixture according to claim 1 having a clearing temperature of 30 °C or higher.
5. (previously presented): A mixture according to claim 1 having a clearing temperature of 50 °C or higher.
6. (currently amended): A mixture according to any one of claims ~~1 to 5~~ 1 or 3-5, wherein the liquid crystalline host has a clearing temperature of 50 °C or higher.

7. (currently amended): A mixture according to claim 1, wherein the additive component is a compound of formula (I):



wherein:

A¹ to A⁴ are independently from each other hydrogen, a polar group which is such as nitro, cyano, a halogen, an optionally substituted methyl group, or an optionally substituted hydrocarbon group of 2 to 40 C-atoms, in which one or more C-atoms may be replaced by a heteroatom, in such a way that oxygen atoms are not linked to one another,

with the proviso that at least one of A¹ to A⁴ comprises a polymerizable group,

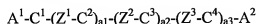
C¹ to C⁴ are independently from each other optionally substituted non-aromatic, aromatic, carbocyclic or heterocyclic groups, ~~preferably~~ connected to each other at the opposite positions via the bridging groups Z¹ to Z³,

Z¹ to Z³ are independently from each other -CH(OH)-, -CO-, -CH₂(CO)-, -SO-, -CH₂(SO)-, -SO₂-, -CH₂(SO₂)-, -COO-, -OCO-, -COCF₂-, -CF₂CO-, -S-CO-, -CO-S-, -SOO-, -OSO-, -SOS-, -CH₂-CH₂-, -OCH₂-, -CH₂O-, -CH=CH-, -C≡C-, -CH=CH-COO-, -OCO-CH=CH-, -CH=N-, -C(CH₃)=N-, -N=N- or a single covalent bond,

a₁, a₂ and a₃ are independently from each other integers from 0 to 3, such that

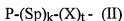
$$1 \leq a_1 + a_2 + a_3 \leq 3,$$

with the proviso that the sequence:



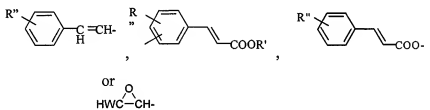
describes the long molecular axis of the rod shaped additive components.

8. (original): A mixture according to claim 7, wherein the additive component is a compound of formula (I), wherein at least one of A¹ to A⁴ includes a polymerizable group, selected from a residue of formula (II):



wherein:

P is hydrogen or a polymerizable group selected from groups comprising
CH₂=CW-, CH₂=CW-O-, CH₂=CW-COO-, CH₂=C(Ph)-COO-, CH₂=CH-COO-Ph-,
CH₂=CW-CO-NH-, CH₂=C(Ph)-CONH-, CH₂=C(COOR')-CH₂-COO-, CH₂=CH-OOC-,
(Ph)-CH=CH-, CH₃-CH=N-(CH₂)_{m1}-, HO-, HS-, HO-(CH₂)_{m1}-, HS-(CH₂)_{m1}-,
HO(CH₂)_{m1}COO-, HS(CH₂)_{m1}COO-, HWN-, HOC(O)-, CH₂=CH-Ph-(O)_{m2},



wherein:

W is H, F, Cl, Br or I or a C₁₋₆ alkyl group,

m1 is an integer having a value of from 1 to 9,

m2 is an integer having a value of 0 or 1,

R' is a C₁₋₆ alkyl group,

R'' is a C₁₋₆ alkyl group, methoxy, cyano, F, Cl, Br or I,

Sp is an optionally substituted straight or branched C₁₋₃₀ alkylene group, in

which one or more -CH₂- groups may be replaced by a heteroatom and/or by a polar group

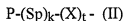
and/or it is optionally possible that one or more carbon-carbon single bond(s) is/are replaced by a carbon-carbon double or a triple bond,

k is an integer having a value of from 0 to 4,

X is -O-, -S-, -NH-, -N(CH₃)-, -CH(OH)-, -CO-, -CH₂(CO)-, -SO-, -CH₂(SO)-, -SO₂-, -CH₂(SO₂)-, -COO-, -OCO-, -OCO-O-, -S-CO-, -CO-S-, -SOO-, -OSO-, -SOS-, -CH₂-CH₂-, -OCH₂-, -CH₂O-, -CH=CH-, -C≡C-, or a single bond,

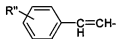
t is an integer having a value of 0 or 1.

9. (currently amended): A mixture according to one of claims 7 and 8, wherein at least one of A¹ to A⁴ of formula (I) is a group of formula (II):



wherein:

P is a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-, CH₂=CW-COO- or



wherein:

W is H, CH₃, F, Cl, Br or I,

R'' is a C₁₋₆ alkyl group, methoxy, cyano, F, Cl, Br or I.

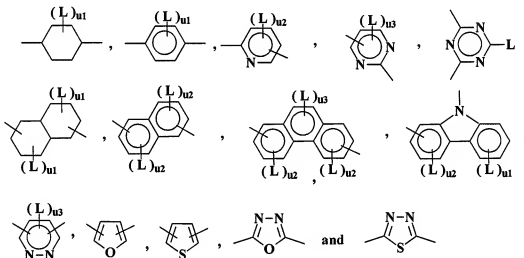
Sp is a C₁₋₂₂ branched or straight-chain alkylene group, in which one or more -CH₂- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH(OH)-, -SO₂-, -COO-, -OCO-, -OCO-O-, -CH=CH-, -C≡C-, -(CF₂)_r -, with the proviso that no two oxygen atoms are directly linked to each other, and wherein r is an integer between 1 and 10,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1.

10. (currently amended): A mixture according to one of claims 7 and 8, wherein C¹ to C⁴ are preferably selected from:



wherein:

L is -CH₃, -COCH₃, -NO₂, -CN or halogen,

u1 is 0, 1, 2, 3, or 4,

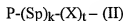
u2 is 0, 1, 2, or 3,

u3 is 0, 1, or 2.

11. (currently amended): A mixture according to one of claims 7 and 8, wherein:

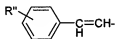
C¹ to C⁴ are selected from optionally substituted cyclohexyl or cyclohexylene, phenyl or phenylene, naphthyl or naphthylene or phenanthryl or phenanthrylene,

A¹ to A⁴ independently from each other is hydrogen, a polar group ~~such as~~ which is cyano, nitro, a halogen, or a group of formula (II)



in which:

P is hydrogen or a polymerizable group ~~such as~~ which is CH₂=CW-,
CH₂=CW-O-, CH₂=CW-COO- or



wherein:

W is H, CH₃, F, Cl Br or I,

R'' is a C₁₋₆ alkyl group, methoxy, cyano, F, Cl, Br or I,

Sp is a C₁₋₂₂ branched or straight-chain alkylene group, in which one or more -CH₂- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH(OH)-, -SO₂-, -COO-, -OCO-, -OCO-O-, -CH=CH-, -C≡C-, -(CF₂)_r-,

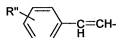
with the proviso that no two oxygen atoms are directly linked to each other, and wherein r is an integer between 1 and 10,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

with the proviso that at least one of A¹ to A⁴ comprises a
polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-, CH₂=CW-COO- or



wherein:

W is H, CH₃, F, Cl, Br or I,

R'' is a C₁₋₆ alkyl group, methoxy, cyano, F, Cl, Br or I.

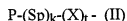
12. (currently amended): A mixture according to one of claims 7 and 8, wherein:

A¹ comprises a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-,
CH₂=CW-COO-,

wherein:

W is H or CH₃,

A² has the meaning of formula (II),



in which:

P is hydrogen or a polymerizable group ~~such as~~ which is
~~as~~-CH₂=CW-, CH₂=CW-O- or CH₂=CW-COO-,

wherein:

W is H or CH₃,

Sp is a branched C₃-C₁₆ alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C₂-C₁₆ alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH₂- groups present in the

hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

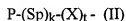
X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1

A⁴ is hydrogen.

13. (currently amended): A mixture according to one of claims 7 and 8, wherein:

A¹ has the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group ~~such as~~ which is CH₂=CW-,
CH₂=CW-O- or CH₂=CW-COO-,

wherein:

W is H or CH₃,

Sp is a branched C₃-C₁₆ alkylene group, optionally comprising at least one oxocarbonyl or group, or is a straight C₂-C₁ alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH₂- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

A² comprises a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-, or CH₂=CW-COO-,

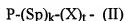
wherein:

W is H or CH₃,

A⁴ is hydrogen.

14. (currently amended): A mixture according to one of claims 7 and 8, wherein:

A¹ has the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O- or CH₂=CW-COO-,

wherein:

W is H or CH₃,

Sp is a branched C₃-C₁₆ alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C₂-C₁₆ alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH₂- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

A³ comprises a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-, or CH₂=CW-COO-,

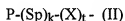
wherein:

W is H or CH₃,

A⁴ is hydrogen.

15. (currently amended): A mixture according to one of claims 7 and 8, wherein:

A² has the meaning of formula (II),



in which:

P is hydrogen or a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O- or CH₂=CW-COO-,

wherein:

W is H or CH₃,

Sp is a branched C₃-C₁₆ alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C₂-C₁₆ alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH₂- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond,
more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

A³ comprises a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-, or CH₂=CW-COO-,

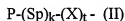
wherein:

W is H or CH₃,

A⁴ is hydrogen.

16. (currently amended): A mixture according to one of claims 7 and 8, wherein:

A¹ and A² have the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group ~~such as~~ which is CH₂=CW-,
CH₂=CW-O- or CH₂=CW-COO-,

wherein:

W is H or CH₃,

Sp is a branched C₃-C₁₆ alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C₂-C₁₆ alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH₂- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

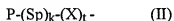
A³ comprises a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-, or CH₂=CW-COO-,

wherein:

W is H or CH₃,

A⁴ is hydrogen.

17. (currently amended): A mixture according to one of claims 7 and 8, wherein at least one of A¹ to A³ has the meaning of formula (II),



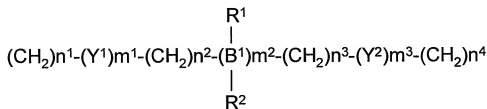
wherein:

P is hydrogen or a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-, CH₂=CW-COO-,

wherein:

W is H or CH₃,

Sp has the meaning of formula (III)



(III)

wherein:

Y^1 and Y^2 each independently represent $-OCO-$ or $-COO-$,

B^1 represents C or CH_3 ,

R^1 and R^2 each independently represent hydrogen or a C_1 - C_{12} alkyl residue,
preferably a C_1 - C_6 alkyl residue, ~~such as~~ which is a methyl, ethyl, propyl, butyl, pentyl, hexyl or
isopropyl residue,

n_1 , n_2 , n_3 and n_4 are independently integers from 0 to 15, such that $0 \leq n_1 + n_2 +$
 $n_3 + n_4 \leq 15$,

m_1 , m_2 and m_3 are independently integers from 0 to 3, such that

$1 \leq m_1 + m_2 + m_3 \leq 3$ and wherein:

one or more $-CH_2-$ groups present in the hydrocarbon chain of (III) may be
replaced, independently, by one or more groups selected from $-O-$, $-CH=CH-$ or $-C\equiv C-$,

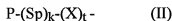
with the proviso that the carbon-carbon double bond of P is not directly connected
to the carbon atom of Y^1 or Y^2 ,

k is 1,

X is $-O-$, $-CO-$, $-COO-$, $-OCO-$, $-CH=CH-$, $-C\equiv C-$, or a single bond, more
preferably $-O-$, $-COO-$, $-OCO-$ or a single bond,

t is 1.

18. (currently amended): A mixture according to one of claims 7 and 8, wherein at least
one of A^1 to A^3 has the meaning of formula (II),



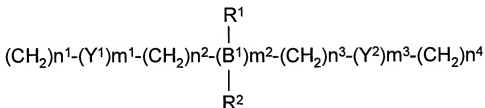
wherein:

P is hydrogen or a polymerizable group ~~such as~~ which is $\text{CH}_2=\text{CW}-$,
 $\text{CH}_2=\text{CW}-\text{O}-$, $\text{CH}_2=\text{CW}-\text{COO}-$,

wherein:

W is H or CH_3 ,

Sp has the meaning of formula (III)



(III)

wherein:

Y^1 and Y^2 each independently represent $-\text{OCO}-$ or $-\text{COO}-$,

B^1 represents C or CH ,

R^1 is hydrogen

R^2 represents a methyl, ethyl, propyl, butyl, pentyl or hexyl group and most preferably a methyl or ethyl group,

$n1$, $n2$, $n3$ and $n4$ are independently integers from 0 to 15,

such that $0 \leq n1 + n2 + n3 + n4 \leq 15$,

$m1$, $m2$ and $m3$ are independently integers from 0 to 3,

such that $1 \leq m1 + m2 + m3 \leq 3$, and wherein:

one or more $-\text{CH}_2-$ groups present in the hydrocarbon chain of (III) may be replaced, independently, by one or more groups selected from $-\text{O}-$, $-\text{CH}=\text{CH}-$ or $-\text{C}\equiv\text{C}-$,

with the proviso that the carbon-carbon double bond of P is not directly connected to the carbon atom of Y¹ or Y²,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1.

19. (previously presented): A mixture according to claim 1 comprising further agents, such as cross-linking agents, stabilizing agents, initiators, dyes, other chiral or achiral additives and plasticizers.

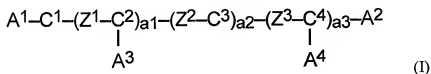
20. (previously presented): A mixture according to claim 1 in form of an elastomer, polymer gel, polymer network or polymer film.

21. (currently amended): A chiral or achiral rod shaped compound, wherein said compound has a rigid core and comprises at least two fused or linked, optionally substituted, non-aromatic, aromatic, carbocyclic or heterocyclic groups, and also comprises at least one optionally substituted alkyl residue, and also comprises at least one polymerizable group and has a transition temperature to the isotropic state of 40 ± 20 °C or lower.

22. (canceled).

23. (previously presented): A compound according to claim 21, wherein the compound has transition temperature to the isotropic state of 0 °C or lower.

24. (currently amended): A compound according to claim 21 of formula (I):



wherein:

A¹ to A⁴ are independently from each other hydrogen, a polar group ~~such as~~ which is nitro, cyano, a halogen, an optionally substituted methyl group, or an optionally substituted hydrocarbon group of 2 to 40 C-atoms, in which one or more C-atoms may be replaced by a heteroatom, in such a way that oxygen atoms are not linked to one another,

with the proviso that at least one of A¹ to A⁴ comprises a polymerizable group,

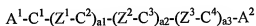
C¹ to C⁴ are independently from each other optionally substituted non-aromatic, aromatic, carbocyclic or heterocyclic groups, ~~preferably~~ connected to each other at the opposite positions via the bridging groups Z¹ to Z³,

Z¹ to Z³ are independently from each other -CH(OH)-, -CO-, -CH₂(CO)-, -SO-, -CH₂(SO)-, -SO₂-, -CH₂(SO₂)-, -COO-, -OCO-, -COCF₂-, -CF₂CO-, -S-CO-, -CO-S-, -SOO-, -OSO-, -SOS-, -CH₂-CH₂-, -OCH₂-, -CH₂O-, -CH=CH-, -C≡C-, -CH=CH-COO-, -OCO-CH=CH-, -CH=N-, -C(CH₃)=N-, -N=N- or a single covalent bond,

a₁, a₂ and a₃ are independently from each other integers from 0 to 3, such that

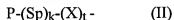
$$1 \leq a_1 + a_2 + a_3 \leq 3,$$

with the proviso that the sequence:



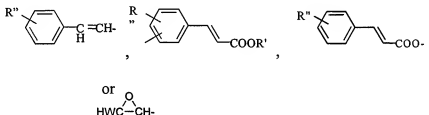
describes the long molecular axis of the rod shaped additive components.

25. (original): A compound according to claim 24, wherein at least one of A¹ to A⁴ includes a polymerizable group, selected from a residue of formula (II):



wherein:

P is hydrogen or a polymerizable group selected from groups comprising
 $\text{CH}_2=\text{CW-}$, $\text{CH}_2=\text{CW-O-}$, $\text{CH}_2=\text{CW-COO-}$, $\text{CH}_2=\text{C(Ph)-COO-}$, $\text{CH}_2=\text{CH-COO-Ph-}$,
 $\text{CH}_2=\text{CW-CO-NH-}$, $\text{CH}_2=\text{C(Ph)-CONH-}$, $\text{CH}_2=\text{C(COOR')-CH}_2\text{-COO-}$, $\text{CH}_2=\text{CH-OOC-}$,
 $(\text{Ph})\text{-CH=CH-}$, $\text{CH}_3\text{-CH=N-(CH}_2\text{)}_{m1}\text{-}$, HO- , HS- , $\text{HO-(CH}_2\text{)}_{m1}\text{-}$, $\text{HS-(CH}_2\text{)}_{m1}\text{-}$,
 $\text{HO(CH}_2\text{)}_{m1}\text{COO-}$, $\text{HS(CH}_2\text{)}_{m1}\text{COO-}$, HWN- , HOC(O)- , $\text{CH}_2=\text{CH-Ph-(O)}_{m2}\text{-}$,



wherein:

W is H, F, Cl, Br or I or a C_{1-6} alkyl group,

$m1$ is an integer having a value of from 1 to 9,

$m2$ is an integer having a value of 0 or 1,

R' is a C_{1-6} alkyl group,

R'' is a C_{1-6} alkyl group, methoxy, cyano, F, Cl, Br or I,

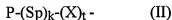
Sp is an optionally substituted straight or branched C_{1-30} alkylene group, in

which one or more $\text{-CH}_2\text{-}$ groups may be replaced by a heteroatom and/or by a polar group
 and/or it is optionally possible that one or more carbon-carbon single bond(s) is/are replaced by
 a carbon-carbon double or a triple bond,

k is an integer having a value of from 0 to 4,

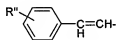
X is -O-, -S-, -NH-, -N(CH₃)-, -CH(OH)-, -CO-, -CH₂(CO)-, -SO-,
-CH₂(SO)-, -SO₂-, -CH₂(SO₂)-, -COO-, -OCO-, -OCO-O-, -S-CO-, -CO-S-, -SOO-, -OSO-,
-SOS-, -CH₂-CH₂-, -OCH₂-, -CH₂O-, -CH=CH-, -C≡C-, or a single bond,
t is an integer having a value of 0 or 1.

26. (currently amended): A compound according to claim 24, wherein at least one of
A¹ to A⁴ of formula (I) is a group of formula (II):



wherein:

P is a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-, CH₂=CW-
COO- or



wherein:

W is H, CH₃, F, Cl, Br or I,

R'' is a C₁₋₆ alkyl group, methoxy, cyano, F, Cl, Br or I.

Sp is a C₁₋₂₂ branched or straight-chain alkylene group, in which one or more
-CH₂- groups present in the hydrocarbon chain may be replaced, independently, by one or more
groups selected from -O-, -CH(OH)-, -SO₂-, -COO-, -OCO-, -OCO-O-, -CH=CH-, -C≡C-,
-(CF₂)_r-,

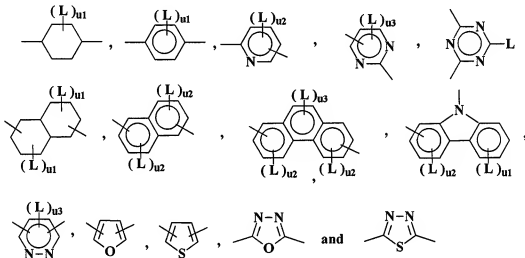
with the proviso that no two oxygen atoms are directly linked to each other, and
wherein r is an integer between 1 and 10,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1.

27. (previously presented): A compound according to claim 24, wherein C¹ to C⁴ are preferably selected from:



wherein:

L being -CH₃, -COCH₃, -NO₂, -CN or halogen,

u1 is 0, 1, 2, 3, or 4,

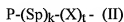
u2 is 0, 1, 2, or 3,

u3 is 0, 1, or 2.

28. (currently amended): A compound according to claim 24, wherein:

C¹ to C⁴ are selected from optionally substituted cyclohexyl or cyclohexylene, phenyl or phenylene, naphthyl or naphthylene or phenanthryl or phenanthrylene,

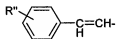
A¹ to A⁴ independently from each other is hydrogen, a polar group—such as which is cyano, nitro, a halogen, or a group of formula (II),



in which:

P is hydrogen or a polymerizable group—such as which is CH₂=CW-,

CH₂=CW-O-, CH₂=CW-COO- or



wherein:

W is H, CH₃, F, Cl Br or I,

R'' is a C₁₋₆ alkyl group, methoxy, cyano, F, Cl, Br or I,

Sp is a C₁₋₂₂ branched or straight-chain alkylene group, in which one or more -CH₂- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH(OH)-, -SO₂-, -COO-, -OCO-, -OCO-O-, -CH=CH-, -C≡C-, -(CF₂)_r-,

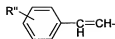
with the proviso that no two oxygen atoms are directly linked to each other, and wherein r is an integer between 1 and 10,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or single bond,

t is 1,

with the proviso that at least one of A¹ to A⁴ comprises a polymerizable group—such as which is CH₂=CW-, CH₂=CW-O-, CH₂=CW-COO- or



wherein:

W is H, CH₃, F, Cl, Br or I,

R'' is a C₁₋₆ alkyl group, methoxy, cyano, F, Cl, Br or I.

29. (currently amended): A compound according to claim 24, wherein:

A¹ comprises a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-,
CH₂=CW-COO-,

wherein:

W is H or CH₃,

A² has the meaning of formula (II),

P-(Sp)_k-(X)_t - (II)

in which:

P is hydrogen or a polymerizable group ~~such as~~ which is CH₂=CW-,
CH₂=CW-O- or CH₂=CW-COO-,

wherein:

W is H or CH₃,

Sp is a branched C₃-C₁₆ alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C₂-C₁₆ alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH₂- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

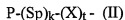
X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1

A⁴ is hydrogen.

30. (currently amended): A compound according to claim 24, wherein:

A¹ has the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group ~~such as~~ which is CH₂=CW-,
CH₂=W-O- or CH₂=CW-COO-,

wherein:

W is H or CH₃,

Sp is a branched C₃-C₁₆ alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C₂-C₁₆ alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH₂- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

A^2 comprises a polymerizable group ~~such as~~ which is $CH_2=CW-$, $CH_2=CW-O-$, or $CH_2=CW-COO-$,

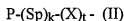
wherein:

W is H or CH_3 ,

A^4 is hydrogen.

31. (currently amended): A compound according to claim 24, wherein:

A^1 has the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group ~~such as~~ which is $CH_2=CW-$, $CH_2=CW-O-$ or $CH_2=W-COO-$,

wherein:

W is H or CH_3 ,

Sp is a branched C_3 - C_{16} alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C_2 - C_{16} alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more $-CH_2-$ groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from $-O-$, $-CH=CH-$, $-C\equiv C-$, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is $-O-$, $-CO-$, $-COO-$, $-OCO-$, $-CH=CH-$, $-C\equiv C-$, or a single bond, more preferably $-O-$, $-COO-$, $-OCO-$ or a single bond,

t is 1,

A³ comprises a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-, or CH₂=CW-COO-,

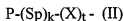
wherein:

W is H or CH₃,

A⁴ is hydrogen.

32. (currently amended): A compound according to claim 24, wherein:

A² has the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O- or CH₂=CW-COO-,

wherein:

W is H or CH₃,

Sp is a branched C₃-C₁₆ alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C₂-C₁₆ alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH₂- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

A³ comprises a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-, or CH₂=CW-COO-,

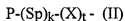
wherein:

W is H or CH₃,

A⁴ is hydrogen.

33. (currently amended): A compound according to claim 24, wherein:

A¹ and A² have the meaning of formula (II),



wherein:

P is hydrogen or a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O- or CH₂=CW-COO-,

wherein:

W is H or CH₃,

Sp is a branched C₃-C₁₆ alkylene group, optionally comprising at least one oxocarbonyl or carbonyloxy group, or is a straight C₂-C₁₆ alkylene group, comprising at least one oxocarbonyl or carbonyloxy group, wherein one or more -CH₂- groups present in the hydrocarbon chain may be replaced, independently, by one or more groups selected from -O-, -CH=CH-, -C≡C-, with the proviso that no two oxygen atoms are directly linked to each other,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1,

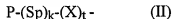
A³ comprises a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-, or CH₂=CW-COO-,

wherein:

W is H or CH₃,

A⁴ is hydrogen.

34. (currently amended): A compound according to claim 24, wherein at least one of A¹ to A³ has the meaning of formula (II),



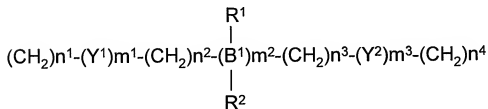
wherein:

P is hydrogen or a polymerizable group ~~such as~~ which is CH₂=CW-, CH₂=CW-O-, CH₂=CW-COO-,

wherein:

W is H or CH₃,

Sp has the meaning of formula (III)



(III)

wherein:

Y¹ and Y² each independently represent -OCO- or -COO-,

B¹ represents C or CH,

R^1 and R^2 each independently represent hydrogen or a C_1 - C_{12} alkyl residue, preferably a C_1 - C_6 alkyl residue, ~~such as~~ which is methyl, ethyl, propyl, butyl, pentyl, hexyl or isopropyl residue,

n_1 , n_2 , n_3 and n_4 are independently integers from 0 to 15, such that $0 \leq n_1 + n_2 + n_3 + n_4 \leq 15$,

m_1 , m_2 and m_3 are independently integers from 0 to 3, such that $1 \leq m_1 + m_2 + m_3 \leq 3$ and

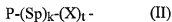
wherein one or more $-CH_2-$ groups present in the hydrocarbon chain of (III) may be replaced, independently, by one or more groups selected from $-O-$, $-CH=CH-$ or $-C\equiv C-$, with the proviso that the carbon-carbon double bond of P is not directly connected to the carbon atom of Y^1 or Y^2 ,

k is 1,

X is $-O-$, $-CO-$, $-COO-$, $-OCO-$, $-CH=CH-$, $-C\equiv C-$, or a single bond, more preferably $-O-$, $-COO-$, $-OCO-$ or a single bond,

t is 1.

35. (currently amended): A compound according to claim 24, wherein at least one of A^1 to A^3 has the meaning of formula (II),



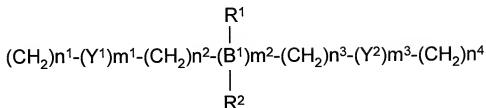
wherein:

P is hydrogen or a polymerizable group ~~such as~~ which is $CH_2=CW-$, $CH_2=CW-O-$, $CH_2=CW-COO-$,

wherein:

W is H or CH₃,

Sp has the meaning of formula (III)



(III)

wherein:

Y¹ and Y² each independently represent -OCO- or -COO-,

B¹ represents C or CH,

R¹ is hydrogen,

R² represents a methyl, ethyl, propyl, butyl, pentyl or hexyl group

and most preferably a methyl or ethyl group,

n₁, n₂, n₃ and n₄ are independently integers from 0 to 15, such that 0 ≤ n₁ + n₂ + n₃ + n₄ ≤ 15,

m₁, m₂ and m₃ are independently integers from 0 to 3, such that m₁ + m₂ + m₃ ≤ 3, and

wherein one or more -CH₂- groups present in the hydrocarbon chain of (III) may be replaced, independently, by one or more groups selected from -O-, -CH=CH- or -C≡C-,

with the proviso that the carbon-carbon double bond of P is not directly connected to the carbon atom of Y¹ or Y²,

k is 1,

X is -O-, -CO-, -COO-, -OCO-, -CH=CH-, -C≡C-, or a single bond, more preferably -O-, -COO-, -OCO- or a single bond,

t is 1.

36. (previously presented): A method of using a chiral or achiral rod shaped compound, comprising preparing mesogenic polymer mixtures according to claim 1 with a chiral or achiral rod shaped compound, wherein said compound has a rigid core and comprises at least two fused or linked, optionally substituted, non-aromatic, aromatic, carbocyclic or heterocyclic groups, and also comprises at least one optionally substituted alkyl residue, and also comprises at least one polymerizable group and has a transition temperature to the isotropic state of 40 °C or lower.

37. (previously presented): Polymer networks prepared from a mixture according to claim 1.

38. (previously presented): Liquid crystalline polymer films prepared from a mixture according to claim 1.

39. (previously presented): A method of using a polymer network or a liquid crystalline polymer film, comprising preparing unstructured or structured optical and electro-optical components and multilayer systems from (A) a polymer network prepared from a mixture according to claim 1 or (B) a liquid crystalline polymer film prepared from a mixture according to claim 1.

40. (previously presented): A method of using a mesogenic, cross-linkable mixture, comprising preparing an elastomer, polymer gel, polymer network or polymer film from a mesogenic, cross-linkable mixture according to claim 1.

41. (previously presented): A method of using a polymer network, comprising manufacturing waveguides, optical gratings, filters, retarders, polarizers, piezoelectric cells or thin film exhibiting non-linear optical properties from a polymer network according to claim 37.

42. (previously presented): Optical or electro-optical components comprising a polymer network according to claim 37.

43. (previously presented): A method of using a liquid crystalline polymer film, comprising manufacturing waveguides, optical gratings, filters, retarders, polarizers, piezoelectric cells or thin film exhibiting non-linear optical properties from a liquid crystalline polymer film according to claim 38.

44. (previously presented): Optical or electro-optical components comprising a liquid crystalline polymer film according to claim 38.